IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

YAMAMOTO : Group Art Unit: 1752

Application No. 10/614,095 : Examiner: Thorl Chea

Filed: July 8, 2003

For: PHOTOTHERMOGRAPHIC MATERIAL AND METHOD FOR PRODUCING SILVER HALIDE USED FOR IT

DECLARATION UNDER 37 C.F.R. §1.132

Honorable Commissioner of Patents and Trademarks

Alexandria, VA 22313-1450

Sir:

I, Seiichi Yamamoto, do declare and state as follows:

I graduated from Tohoku University with a Master's Degree in Science, Department of Chemistry in March 1990;

I joined Fuji Photo Film Co., Ltd. in April 1990, and from 1990 to 2000, I was engaged in research and development in the field of silver halide photographic photosensitive materials for printing at Ashigara Laboratories. Since 2000, I have been engaged in research and development in the field of photosensitive materials for medical use at Digital & Photo Imaging Materials Research Laboratories;

I am familiar with the Office Action of May 23, 2005, and understand that the Examiner has rejected Claims 1-12 under 35 U.S.C. §103(a).

I am the inventor of the invention of the present application. The following additional comparative experiments were carried out by me or under my supervision in order to make the advantages of the subject matter more clear.

Experiment A

Emulsion sample 14 was prepared in the same manner as the preparation of the emulsion 14 described in Table 1 of Ikari (US6,482,583). Additionally, emulsion samples 14a, 14b, and 14c were prepared in the same manner as the preparation of the emulsion sample 14 except that the amounts of the metals contained in the core and shell of the silver halide grains were changed as shown in Table 1. Emulsion sample C was prepared in the same manner as the preparation of the emulsion sample C described in column 19 of Zou (US 6,060,231). Additionally, emulsion samples C-1 to C-3 were prepared in the same manner as the preparation of the emulsion sample C except that the amounts of the metals contained in the core and shell of the silver halide grains were changed as shown in Table 2.

Photothermographic material samples 14, 14a, 14b, 14c, C, C-1, C-2, and C-3 were prepared in the same manner as in Example 1 of Ikari, respectively using the emulsion samples 14, 14a, 14b, 14c, C, C-1, C-2, and C-3. The obtained photothermographic material samples were subjected to the heat development and the evaluation of the image storability (printout) in the same manner as in Example 1 described in the specification of the present application (US Application 10/614,095). The results are shown in Tables 1

and 2.

In the preparation of the emulsion 14 of Ikari, the addition of Ir is started when 30 % of the entire silver has been added. In the preparation of the emulsion C of Zoe, the addition of Ir is started when 25 % of the entire silver has been added. It should be noted that the ratio of Ir contained in the core portion corresponding to 50 % of the total mol% of silver halide in the grain can be naturally calculated from the above distribution information. The calculated proportion of Ir contained in the core portion corresponding to 50 % of the total mol% of silver halide is shown in the column with a heading "Proportion of Ir contained in the core portion corresponding to 50mol% of the total silver halide." Accordingly, it is possible to determine whether or not each emulsion sample is within the scope of the present claims.

As is clear from the results shown in Tables 1 and 2 (in particular, photothermographic samples 14c and C-3), printout was unexpectedly improved when 90 % or more of the total Ir amount is present in the core portion corresponding to 50 % of the total mol% of silver halide in the grain. Further, I believe that remarkable improvement of printout can be achieved also when metals such as Ru, Os, Co, Pt, Zn and Rd are used in place of Fe or Cu which was used in the emulsion sample 14c or C-3, as is clarified by the evaluation results shown in Example 3 of the specification of the present application.

Table 1

Emulsion No. (photothermographic material No.)	Core portion (%)	Ir (%)	Metal other than Ir in the core portion	Shell portion (%)	Ir (%)	Metal other than Ir in the shell portiion	Proportion of Ir contained in the core portion corresponding to 50mol% of the total silver halide	Print out
14	30	0	—	70	100	Fe (100%)	29	0.12
14a	30	30	—	70	70	Fe (100%)	50	0.11
14b	30	60	—	70	40	Fe (100%)	71	0.09
14c	30	100	—	70	0	Fe (100%)	100	0.05

Table 2

Emulsion No. (photothermographic material No.)	Core portion (%)	Ir (%)	Metal other than Ir in the core portion	Shell portion (%)	Ir (%)	Metal other than Ir in the shell portiion	Proportion of Ir contained in the core portion corresponding to 50mol% of the total silver halide	Print out
C	25	0	—	75	100	Cu (100%)	33	0.15
C-1	25	25	—	75	75	Cu (100%)	50	0.14
C-2	25	55	—	75	45	Cu (100%)	70	0.12
C-3	25	100	—	75	0	Cu (100%)	100	0.08

Conclusions

The present invention showed unexpectedly greater improvements in suppression of printout.

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further, that these statements were made with the knowledge that willful false statements and like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

DATE: August 23, 2005

Seiichi Yamamoto

Seiichi Yamamoto